UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,050	05/20/2004	Jin Yong Kim	1740-000046/US	6746

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EXAMINER
JACKSON, DERICK G

ART UNIT	PAPER NUMBER
2609	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/849,050	KIM ET AL.
	Examiner	Art Unit	
	Derick G. Jackson	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 May 2004_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-16, 18-30_ is/are rejected.

7)☒ Claim(s) _17_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _5/20/04_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☒ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Priority

1.   Acknowledgment is made of applicant's claim for foreign priority based on an

application filed in the Republic of Korea on 20 May 2003. It is noted, however, that

applicant has not filed a certified copy of the application as required by 35

U.S.C. 119(b).

Drawings

2.   Figure 1, 2, and 3 should be designated by a legend such as --Prior Art--

because only that which is old is illustrated. See MPEP § 608.02(g). Corrected

drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action

to avoid abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Claim Objections

3.   Claim 4, 10, 13, 26 and 27 are objected to because of the following informalities:

   Claim 10 introduces an undefined acronym ROM.

   Claim 4,13, 26, and 27 introduces an undefined acronym RF.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "said information" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Examiner suggests revising limitation to --said copy protection information--.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 1, 2, 8, 11, and 12 are rejected under 35 U.S.C. 102(e) as being

anticipated by *Lee, et al. (hereafter, "Lee")*, U.S. Pre-Grant Patent Publication No.

2004/0120247A1.

○   Regarding claim 1, *Lee* discloses a recording medium including recorded data

(Fig. 4, paragraph [0032]), including: an information area, the information area including

data area (first region) and lead-in area (second region) used for storing disc related

information such as copy protection information (paragraph [0033]). In addition, data

may be recorded in said lead-in area as general pits (straight type) and wobbled pits

(wobble type) (Fig. 7B, element 21 and 23, paragraph [0041]). Further, copy protection

information may be recorded in the wobble (paragraph [0038]) by bi-phase modulation

(paragraph [0032] and [0047]).

        Regarding claim 2, it is inherent to us copy protection information, with

associated recording medium, to prevent illegal copying of recorded data. In addition,

Lee discloses medium-related information area where copy protection information is

stored and is encoded in the wobbled pits (paragraph [0038]) by bi-phase modulation

([paragraph 0047]).

        Regarding claim 8, *Lee* discloses recording a plurality of pit wobbles including

different kinds of information to improve reliability of said information (paragraph [0040]

and [0042]).

        Regarding claim 11, method claim 11 is drawn to a method of forming copy

protection information on a recording medium claimed in 1. Therefore method claim 11

corresponds to product claim 1 and is rejected for the same reasons of anticipation as used above.

Regarding claim 12, method claim 12 is drawn to product claim 1 and 2 and is therefore rejected for the same reasons of anticipation as used in claim 1.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 3, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Lee, et al. (hereafter, "Lee")*, U.S. Pre-Grant Patent Publication No. 2004/0120247A1 and in further view of *Ozaki, et al. (hereinafter "Ozaki")*, European Patent Publication No. 0703576A1 and *Murakami, et al. (hereinafter "Murakmi)*, European Patent Publication No. 0997899A2.

Regarding claim 3, claim limitations according to claim 1 are met by *Lee* above. *Lee* does not disclose a frame sync signal indicative of the start of a data frame encoded in straight pits and at least a portion of said copy protection information positioned after the frame sync signal and encoded in wobbled pits shifted from the track center to the left and/or right.

Ozaki discloses an optical disc having data recorded as a pit sequence formed along tracks, wherein said pit sequence includes a normal pit train (straight pits) and unusual pit train (wobbled pits) wherein said unusual pit train wobble to the left and/or right from the track center (Fig. 1A, column 6, lines 31-53). Further, Ozaki also discloses as one embodiment a data frame composed of an irregular pit train and an unusual pit train wherein said data frame, the regular pit train occupies a first portion of said data frame and an irregular pit train occupies a second portion of said data frame (Fig. 30A and 30G, Column 30, lines 1-3).

In the same field of endeavor, Murakami discloses a data frame format wherein said data frame, control data is set as a synchronous signal indicative of the start of said data frame format (Fig. 2B, element 111, paragraph [0026], lines 28-29) and optional information including ciphered information (Fig. 25, element 112, paragraph [0027], lines 52-60) is positioned after said control data.

Therefore it would have been obvious to one skilled in the art at the time the invention was made to encode the synchronous signal as straight pits in one portion of the data frame and the copy protection information as wobbled pits in a portion after the synchronous signal, the motivation being to provide the advantage of wobbled pits and disc format to effectively prevent illegal reproduction of data as in Ozaki (column 7, lines 35-37) and Murakami (column 2, lines 17-20).

Regarding claim 4, claim limitations according to claim 3 are met by Lee, Ozaki, and Murakami above. It is well known that a finite length of time is required to detect and process an RF signal. Therefore, it would have been obvious to one skilled in the

art at the time the invention was made to allow an elapsed time (distance) after an RF

signal indicating the start of a data frame motivation being to ensure proper detection of

encoded information following the frame synch signal.

Regarding claim 5, claim limitations according to claim 3 are met by *Lee, Ozaki,*

and *Murakami* above. *Lee* discloses a data bit (0 or 1) dependent on the number of pits

(Fig. 6A through 6C). *Murakami* discloses a data frame consisting of frame sync portion

· and a data portion wherein the data frame, the length of the frame sync portion and the

length of the data portion is dependent on the number of bits (bytes) assigned and the

length of the information, respectively (Fig. 2B). Furthermore, *Ozaki* discloses a data

frame composed of straight pits and wobbled pits (page 39, Fig. 30G). Therefore, it

would have been obvious to one skilled in the art at the time the invention was made to

have the length of the straight pits (forming the frame sync portion of a frame) and the

wobbled pits (forming the data portion of a frame) depend on at least one of a number ·

of pits assigned to a single bit, length of the frame synch signal, length of the

information, and time required for detecting the frame sync signal to ensure accurate

detection of the recorded data.

9.   Claim 6, 7, 21, and 22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over *Lee* as applied to claim 1 above and in further view of *Murakami, et*

al. (hereinafter "Murakmi), European Patent Publication No. 0997899A2.

Regarding claim 6, claim limitations according to claim 1 are met by *Lee* above. *Ozaki* does not disclose using copy protection information as a decryption key for decrypting encrypted data.

Murakami discloses using ciphered information (copy protection information) wherein said ciphered information includes key information for deciphering the main information (Fig. 2A, paragraph [0028], lines 3-9).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the copy protection information as a key to decrypt encrypted recorded data motivation being to protect files and prevent illegal copying of recorded data (page 5, column 7, lines 52-55).

Regarding claim 7, claim limitations according to claim 6 are met by *Lee and Murakami above. Lee* further discloses general pits being repeatedly formed between pit wobbles further dividing said second portion into straight-type and wobbled-type (paragraph [0041]).

Regarding claim 21, see combined rejections for claim 1 and 6 above.

Regarding claim 22, see rejection for claim 6 above.

10.   Claim 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Lee* as applied to claim 1 above and in further view of *Karuda (hereinafter, Karuda)*, U.S. Pre-Grant Patent Publication No. 2003/0067858A1.

Regarding claim 9, claim limitations according to claim 1 are met by *Lee* above.

Lee does not disclose copy protection information is spread spectrum encoded and encoded in wobbled pits.

Kuroda discloses the use of spread spectrum techniques to randomize, in whole or in part, the predetermined information recorded as wobbled pits (Abstract) wherein part of said predetermined information indicating a synchronizing signal is not randomized (page 1, paragraph [0020]). In addition, Kuroda further discloses the randomized information may include copy control information (page 2, paragraph [0044]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to encode the copy protection information by spread spectrum techniques to improve the concealment of said copy protection information encoded in wobbled pits (page 1, paragraph [0014]).

Regarding claim 10, claim limitations according to claim 9 are met by Lee and Ozaki above. Karuda does not disclose using the copy protection information as a ROM mark. However, it is known in the art that a ROM mark is a unique identifier embedded in the pre-recorded region (CPI region) of an optical disc recording media and is intended to prevent the duplication of unauthorized disc titles by pirates. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the copy protection information as a ROM mark to prevent the illegal copying of recorded data.

11.   Claims 13-16, 18-20, and 25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over *Lee* as applied in claim 1 above and *Hayashi, (hereinafter "Hayashi"),*

United States Patent 6847599.

Regarding claim 13, claim limitations according to claim 12 are met by *Lee*

above. *Lee* does not disclose a method of detection wherein detecting includes

detecting a frame sync signal indicative of the start of a data frame from an RF

reproduced signal created by pits formed along tracks existing on the recording

medium.

In the same field of endeavor, *Hayashi* discloses a method of detecting a header

(frame synch) signal indicative of the start of a data area (frame) from an RF signal

received from an RF amplifier (Fig. 1, elements 4 and 15, Column 11, lines 32-39).

Therefore, it would have been obvious to one skilled in the art at the time the

invention was made to use the detector as disclosed by *Hayashi* to detect the frame

sync signal motivation being to accurately detect specific areas on a disc (column 4,

lines 1-3).

Regarding claim 14, claim limitations according to claim 13 are met by *Lee* and

Hayashi above. It is known that detection of a signal requires a finite time period after

said signal is available. Therefore, it would have been obvious to one skilled in the art at

the time the invention was made for detecting to occur a fixed period after the frame

sync signal is available.

Regarding claim 15, claim limitations according to claim 12 are met by *Lee*

above. *Lee* does not disclose a method of detection wherein detecting includes

integrating a push-pull signal and producing an output data bit based on the integrated

value.

In the same field of endeavor, *Hayashi* discloses a method of detection by

integrating a push-pull signal created by a difference between beams reflected by left

and right portions around a track center (Fig. 3) and producing an output data bit based

on the integrated value (Fig. 8, Column 19, lines 25-39).

Therefore, it would have been obvious to one skilled in the art at the time the

invention was made to use the method of detection as disclosed by *Hayashi* to detect

recorded data on disk as disclosed by *Lee* motivation being to enable comparison of the

level of reflected light quantity to a threshold value to identify the specific recorded data

(column 4, lines 30-33).

Regarding claim 16, claim limitations according to claim 15 are met by Lee and

Hayashi above. It would have been obvious to one skilled in the art at the time the

invention was made to begin integration after a frame sync signal is available to

properly detect the recorded data.

Regarding claim 18, claim limitations according to claim 12 are met by *Lee*

above. *Lee* does not disclose a method of detection wherein detecting includes

determining a value of a data bit based on an integrated value.

Hayashi discloses a method of detection by determining a value of a data bit

based on an integrated value (Fig. 8, column 19, lines 25-39).

Therefore, it would have been obvious to one skilled in the art at the time the

invention was made to combine the method of reproducing data from a recording

medium according to *Lee* and the method of detection according to *Hayashi* motivation

being to detect information recorded on the disc.

Regarding claim 19, claim limitations according to claim 18 are met by *Lee* and

Hayashi above. *Hayashi* discloses a method of detection by determining a whether the

magnitude of an integrator output exceeds a positive and negative threshold value (Fig.

8,).

Regarding claim 20, claim limitations according to claim 19 are met by *Lee* and

Hayashi above. As claimed in claim 2 above, copy protection information is used for

preventing illegal copying of the contents recorded on the recording medium and said

copy protection information is encoded in a data unit made up of bits. Therefore, it

would have been obvious to one skilled in the art at the time the invention was made

that the bit value output of the detector disclosed by *Hayashi* would be a segment of a

data unit and thus a portion of said copy protection information.

Regarding claim 25, claimed detector is drawn to method claim 12 and is

therefore rejected for same reasons of anticipation as used above. *Lee* does not

disclose a signal processor for decrypting the data utilizing the copy protection

information.

In the same field of endeavor, *Hayashi* discloses an apparatus for reproducing a

disc with a host computer (Fig. 1, element 40) wherein said host computer contains a

processor capable of performing signal processing techniques. Therefore, it would

have been obvious to one skilled in the art at the time the invention was made to use a

computer with a processor motivation being to perform intensive computation such as

data decryption.

12.   Claim 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lee as applied to claim 1 above and in further view of *Murakami*, et al. (hereinafter

"*Murakmi*"), European Patent Publication No. 0997899A2 and *Karuda* (hereinafter,

Karuda), U.S. Pre-Grant Patent Publication No. 2003/0067858A1.

    Regarding claim 23, see combined rejections for claim 9 and 21 above.

    Regarding claim 24, see combined rejections for claim 10 and 21 above.

13.   Claims 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lee as applied in claim 1 above and *Hayashi, (hereinafter "Hayashi"),* United States

Patent 6847599 and in view of *Yokoi, (hereinafter "Yokoi"),* United States Patent

7006419B2.

    Regarding claim 26, claim limitations according to claim 25 are met by *Lee and*

Hayashi. Hayashi discloses a header (frame synch) detector for detecting the header of

a pit array (frame) from an RF signal (Fig. 1, element 4 and 15).

    Hayashi does not disclose using a band-pass filter to receive a push-pull signal.

    In the same field of endeavor, *Yokoi* discloses an apparatus using a band pass

filter (BPF) for receiving a push-pull signal (column 7, lines 22). Therefore, it would

have been obvious to one skilled in the art at the time the invention was made to use a

band-pass filter to remove unwanted noise and harmonic components thus producing a

smooth envelop waveform for improved signal detection.

Regarding claim 27, claim limitations according to claim 26 are met by *Lee,*

Hayashi and Yokoi. Hayashi discloses a header (frame synch) detector (reset timer)

from an RF signal received from an RF amplifier (Fig. 1, elements 4 and 15, Column 11,

lines 32-39) and generating a start signal upon detection of a synch signal (Fig 1.

elements 15 and DT.H)

Regarding claim 28, claim limitations according to claim 27 are met by *Lee,*

Hayashi and Yokoi. Hayashi discloses a timing generator for generating a reference-

timing signal (Fig. 1, element 8, column 10, lines 52-62) for use as an operation clock

signal.

Regarding claim 29, claim limitations according to claim 28 are met by *Lee,*

Hayashi and Yokoi. Hayashi discloses a detector including an integrator for integrating a

push-pull signal (Fig. 8, element 71).

Regarding claim 30, *Hayashi* discloses a detector for detecting a bit output by an

integrator (Fig. 8).

Allowable Subject Matter

14.   Claim 17 is objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

15.   The following is a statement of reasons for the indication of allowable subject matter: The cited prior arts have failed to disclose applicant's claimed invention "a method of reproducing data from a recording medium, comprising: detecting copy protection information for use in decrypting the data, to reproduce the data, wherein said copy protection information is recorded in a region of the recording medium, the region including a data frame, the data frame including a first portion having first data encoded in straight type and a second portion having said copy protection information encoded in wobbled type by bi-phase modulation; and controlling a decryption of data recorded on data area based on the detected copy protection information, wherein said detecting includes integrating a push-pull signal created by a difference between beams reflected by left and right portions around a track center and producing an output data bit based on the integrated value, wherein said integrating samples the push-pull signal and adds the sampled values such that for half a prescribed integration time interval, sampled values are added and for half a prescribed integration time interval, sampled values are added with sign inversion."

Conclusion

16.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derick G. Jackson whose telephone number is (571) 270-3314. The examiner can normally be reached on M-F 9 A.M. – 4:30 P.M. E.S.T.
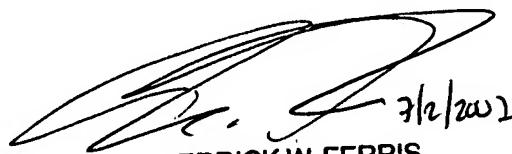
If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Derrick W. Ferris can be reached on (571) 272-3123. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the Status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

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Customer Service Representative or access to the automated information system, call

800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derick G. Jackson
Patent Examiner
Art Unit 2609

DGJ

DERRICK W. FERRIS
PRIMARY PATENT EXAMINER